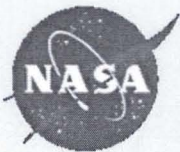


Health and Environment Linked for Information Exchange (HELIX)-Atlanta: A CDC-NASA Joint Environmental Public Health Tracking Collaborative Project

Mohammad Al-Hamdan, Bill Crosson, Maury Estes, Ashutosh Limaye, Jeff Luvall, Dale Quattrochi, Doug Rickman
NASA/MSFC/NSSTC/USRA

Partners

Centers for Disease Control and Prevention
Kaiser-Permanente Georgia
U.S. Environmental Protection Agency
Georgia Environmental Protection Division
Georgia Division of Public Health
Emory University
Georgia Institute of Technology

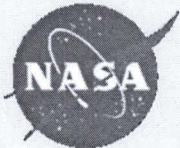
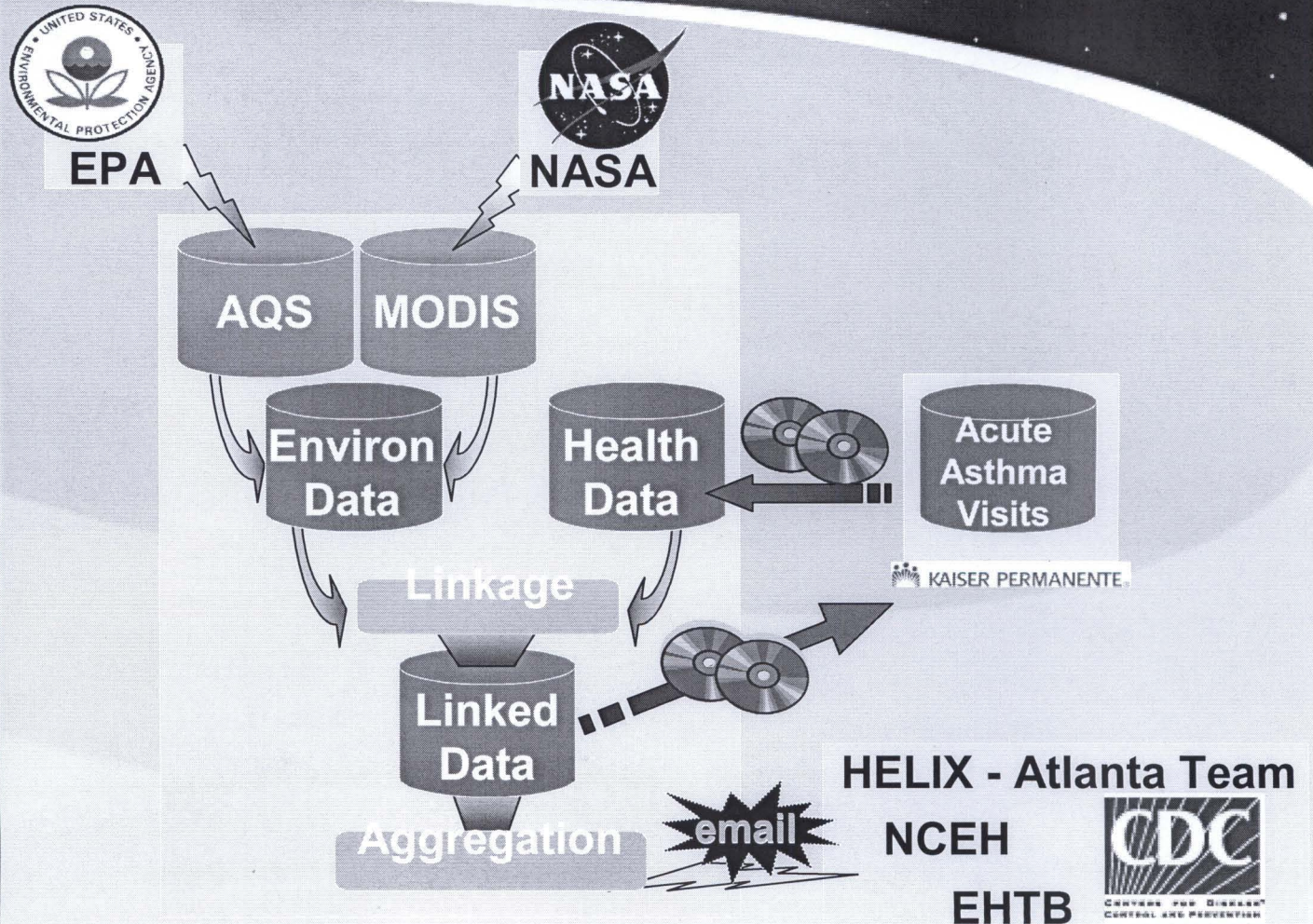


HELIX-Atlanta Overview

Background & Objectives

- HELIX-Atlanta was developed to support current and future state and local EPHT programs to implement data linking demonstration projects which could be part of the CDC EPHT Network.
- HELIX-Atlanta is a pilot linking project in Atlanta for CDC to learn about the challenges the states will encounter.
- NASA/MSFC and the CDC are partners in linking environmental and health data to enhance public health surveillance.
- The use of NASA technology creates value – added geospatial products from existing environmental data sources to facilitate public health linkages.
- Proving the feasibility of the approach is the main objective

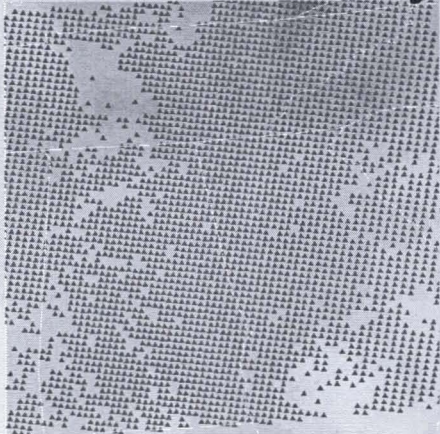
Approach



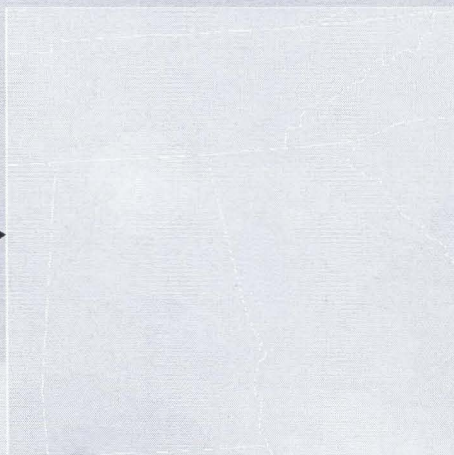
Exposure Assessment

Merging NASA & EPA Data

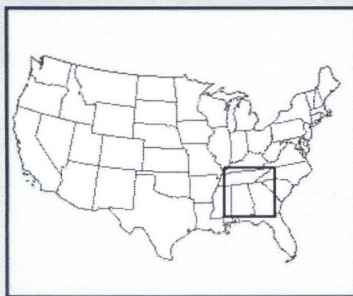
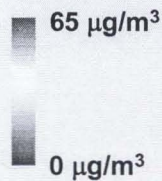
NASA MODIS only



Merged

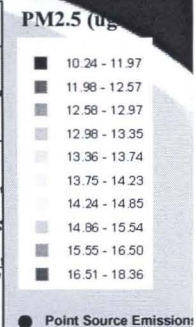
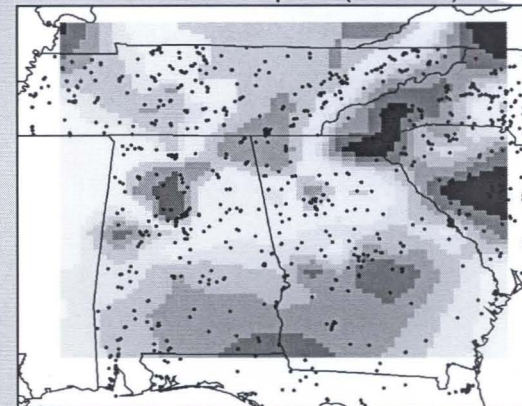


EPA AQS only

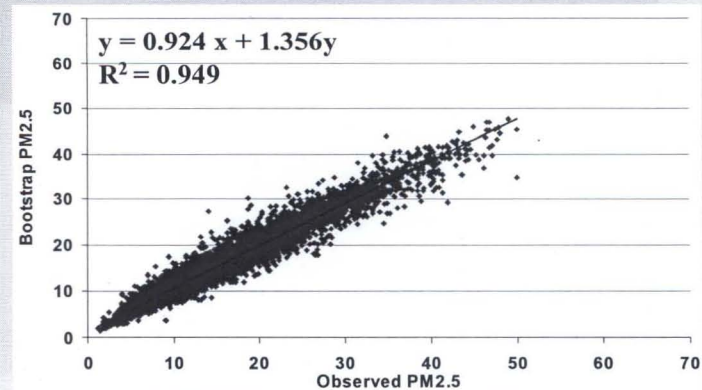


Evaluation

PM2.5 Mean Composite (Year 2003)



● Point Source Emissions



Cholera vs. Contaminated Water

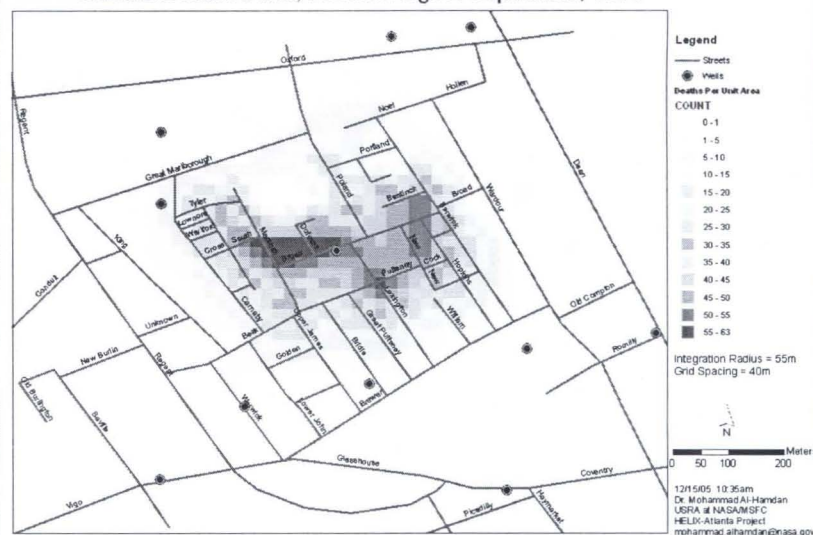
Public Health Surveillance

Cholera Deaths Soho, London August-September, 1854



*Original data were published by C.F. Overlin, UK, Southampton Buildings, London, England, 1854 in Snow, John, On the Mode of Communication of Cholera, 2nd Ed, John Churchill, New Burlington Street, London, England, 1855.
**Digital Data of Streets, Wells, and Deaths Residences which were used to create this surface were downloaded from the UCLA Department of Epidemiology Website at <http://www.ph.ucla.edu/epidemiology/1854/>

Cholera Deaths Soho, London August-September, 1854

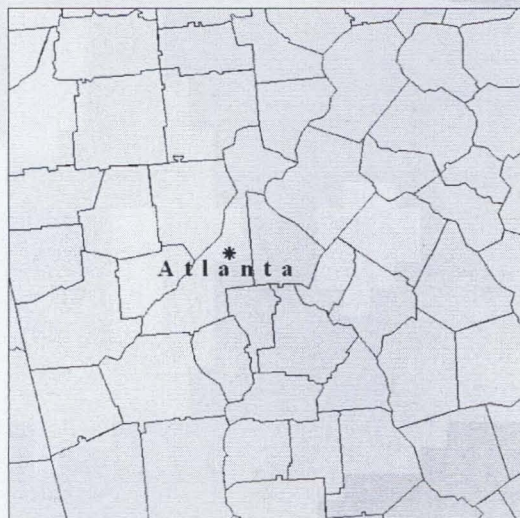
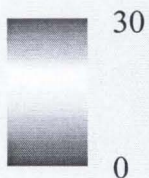


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Asthma vs. PM_{2.5}

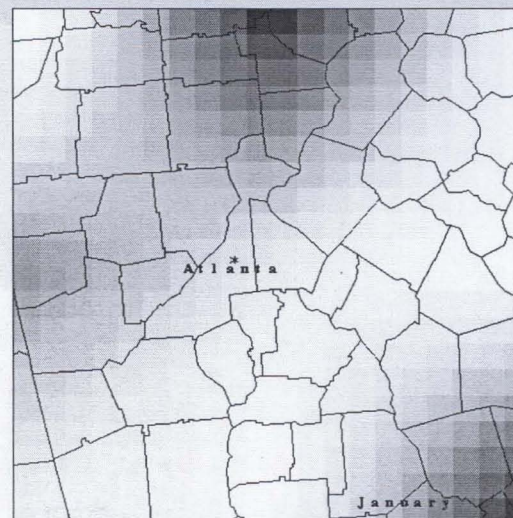
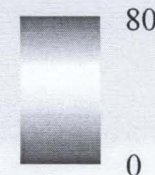
Year 2002

Monthly Mean PM_{2.5} (ug/m³)



January

Monthly Asthma Visits Rate (Per 10,000)



Successes and Future Work

Successes

- Proven the feasibility of linking environmental data (MODIS PM_{2.5} estimates and AQS) with health data (asthma) and developed the necessary algorithms
- Developed algorithms for health data surfacing that protects PHI which can be helpful for public health surveillance and decision makers
- Journal Publications (1 Submitted JAWMA, 3 Anticipated)
- Negotiated a Business Associate Agreement with a health care provider to enable sharing of Protected Health Information

Future Work

- Integrate New Satellite Data Sets from CALIPSO, Aura OMI, and NPOESS APS of aerosol profile and speciation information and other environmental hazards to develop even more robust models for the CDC EPHTN.

